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JAPANESE PATENT OFFICE

## PATENT ABSTRACTS OF JAPAN

(11) Publication number: 03176053 A

(43) Date of publication of application: 31 . 07 . 91

(51) Int. Cl

A61F 13/15

A61F 5/44

(21) Application number: 01315742

(71) Applicant: ZUIKOU:KK

(22) Date of filing: 04 . 12 . 89

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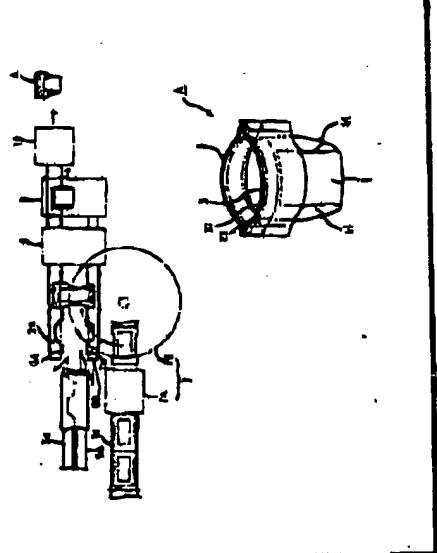
(54) MANUFACTURE OF BRIEFS TYPE DISPOSABLE DIAPER

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## (57) Abstract:

**PURPOSE:** To reduce costs by enabling an automatic large-scale production method by forming a back body wrapping part and front body wrapping sections to place a diaper main body thereon orthogonally and to bond it thereto.

**CONSTITUTION:** Optional stock is selected for a back body wrapping section and front body wrapping sections (2 and 3) independently of diaper body 1. In other words, the diaper body 1 is relayed to a turning transfer device 7B behind a suction conveying device 7A and the diaper body 1 is turned by 90° to be supplied to a specified position between belt bodies 2a and 3a of both body wrapping sections perpendicular thereto. Then the diaper body is conveyed to a bonding means 8 to bond it integrally with the belt bodies 2a and 3a of both body wrapping sections. Thereafter, the assembly is conveyed to a folding means 9 to be folded double and side ends of the belt bodies 2a and 2b of both the body wrapping sections are cut while being bonded by a bonding/ cutting means 10.



full translation attached  
No equiv. outside Japan

## Translation of

Japanese laid open patent application number H3-176053

Japanese Patent Office (J P)  
LAID OPEN PATENTS GAZETTE (A)

Laid open patent application number H3-176053

Laid open July 31, 1991

INT. CL<sup>5</sup> A 61 F 13/15

5/44

Identification code H

Internal office filing numbers 7603-4 C

6606-3B A 41 B 13/02 S

Examination request not requested

Number of claims 1

(total of 6 pages (in the Japanese))

Title of the invention Brief-type disposable diaper production  
method

Patent application number H1-315742

Application date December 4, 1989

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- 2 -

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patent attorney F. Okumura

Agent

## specification

## 1. Title of the invention

Brief-type disposable diaper production method

## 2. Scope of the patent claim

A brief-type disposable diaper production method

involving

a process whereby a water-absorbent material is inserted between an outer sheet and an inner sheet to form a diaper body; a process whereby a front waistband and a continuous back waistband having an elastic member at least at the side is formed;

a process whereby the diaper body is overlapped and adhered to both waistbands in the transverse direction;

a process whereby the diaper body is folded double and both waistbands are brought into contact; and

a process whereby the contacted waistbands are cut to prescribed dimensions and the regions near the cuts are adhered to integrate the waist parts at the edge portions

to produce a brief-type disposable diaper from a diaper body and a single waistband.

## 3. Detailed description of the invention

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#### Field of industrial use

The present invention relates to a brief-type disposable diaper production method.

#### Prior art

Known technology relating to this type of brief-type disposable diaper production method is disclosed in Japanese Unexamined Patent Application Number 557-77304: "Diaper-brief and Production Method Therefor".

#### Problems to be overcome by the invention

The abovementioned technology is disadvantageous in that as there is a cut-out portion in order to form an opening for the wearer to insert his/her legs, it is necessary to add a process for forming the cut-out portion, which raises production costs.

#### Means of overcoming the abovementioned problem

The present invention overcomes the abovementioned problem of the prior art and allows the production of brief-type disposable diapers by an automated large-scale production method involving a process whereby a diaper body is formed; a process whereby a back waist part and front waist part are formed; a process whereby the diaper body is overlapped and adhered to both waist parts in the transverse direction; and a process whereby the diaper body is adhered and integrated.

#### Embodiment

The present invention is described in detail based on the embodiment shown in the following drawings.

Figures 4 through 6 show an example of a brief-type disposable diaper produced according to the present invention: 1

- 4 -

represents the diaper body, formed by inserting absorbent material 13 between outer sheet (for example, a water-impermeable P.E. sheet) 11 and inner sheet (for example, water permeable nonwoven cloth) 12.

2 is the back waist part and 3 is the front waist part, and the material for both waist parts 2 and 3 may be selected independently from the material for diaper body 1, although in this embodiment, the same material is used; the double layer having P.E. sheets 21 and 31 as the outside and nonwoven cloth 22 and 32 as the inside is formed, an elastic member sheet (for example, a polyurethane sheet) 23 and 33 is inserted into part thereof, so that at least the upper edge is expandable. It should be noted that it is also possible to have a single layer elastic sheet, to form a completely expandable construction. It should be noted that as waist parts 2 and 3 are preferably of an air-permeable material, it is desirable either to take the nonwoven cloth and elastic sheet, and exclude the P.E. sheet, or, when a P.E. sheet is used, to puncture a plurality of small holes therein. It is also possible to totally or partially affix the elastic member (rubber thread, rubber tape or the like) to a sheet of suitable material, to form an elastic sheet.

Moreover, the hole parts H for the insertion of the wearer's legs are dictated by the width and shape of the diaper body 1 and the width and shape of waist parts 2 and 3, and generally, the shape is such that the holes are toward the front side.

The brief-type disposable diaper production method of the

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present invention will be described below with reference to Figures 1 through 3.

Figure a shows the diaper body 1 production process: absorbent body 13 is placed on outer sheet (back sheet) 11 supplied from outer sheet roller 11a, then inner sheet (top sheet) 12, supplied from inner sheet roller 12a, is supplied thereon, to achieve a sandwich-like insertion of absorbent body 1 between outer sheet 11 and inner sheet 12; then this is transported by the first conveyor device 4 to adhering-cutting device 15, and the circumference is firmly adhered by adhering-cutting device 15, or adhered with adhesive, then cut to the required shape. It should be noted that this process is the same as known diaper production processes, and it is possible to employ a conventional production line for disposable diapers.

It should be noted that the adhering-cutting device 15 comprises two stages: first unit 15a and second unit 15b. In first unit 15a, only adhesion and the cutting of cut-away parts P proceeds, to continuously form diaper body 1, then diaper body band 1a is transported to the next process, and may be cut crosswise to the required dimensions by second unit 15b when in the vicinity of the waistbands 2,3-adhesion process.

Moreover, as there are no cut-away parts P when diaper body 1 is long, it is also possible to achieve the aims of the present invention by only adhering in first unit 15a, then cutting in second unit 15b.

There are various possible shapes for the cut-away parts P, and the shape can be selected according to the shape of the

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waistband 2,3 and the desired shape of hole parts H.

Figure 1(b) shows a waistband 2, 3 production line: elastic member sheet 23a, supplied by elastic member sheet roller 14, is cut along a continuous S-shaped cutting line in the central portion by cutting device 24 to form a pair of bands, back waistband 2a and front waistband 3a.

It should be noted that in the case of the multilayer constructions shown in Figure 3 (outer sheet (P.E. sheet) and elastic member sheet, inner sheet (nonwoven cloth) and elastic member sheet, or outer sheet and elastic member sheet-inner sheet), if elastic member sheet 23a is a band of the same width, and only part of sheet 21a, 22a is adhered, the elastic member sheet can be used effectively without cut-away parts, and holes of the desired shape can be found by selecting a suitable shape for waist part 2,3.

Figure 1(c) integrates the diaper body 1 process of Figure 1(a) and the waistband 2a, 3a process of Figure 1(b), to show the brief-type disposable diaper-forming process: the second conveying device 5a, 5b for waistbands 2a, 3a extends to become the third conveying device 6A and the force conveying device 6B.

Diaper body supply means 7 comprises suction conveying device 7A and rotation conveying device 7B, such that suction conveying device 7A for conveying the diaper body 1 that has been cut to the required dimensions is provided at the end of the first conveying device 4, after which diaper body 1 proceeds onto rotation conveying device 7B, then rotation conveying device 7B rotates the diaper body 1 through 90°, to supply diaper body 1

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transversely to a prescribed position on waistband 2a, 3a.

It should be noted that rotation conveying device 7B receives the diaper body 1 on the conveying surface of suction conveying device 7A then supplies it by rotating 1/4 of a rotation while suction continues, then rotating the diaper body 1 that is between third conveying device 6A and fourth conveying 6B through 90°, and diaper body supply means 7 can achieve the aim by means of a suitable conveying means as follows: the adsorption surface of the diaper body is rotated through 90° according to the rotation of a suction rotation drum provided so as to be continuous with suction conveying device 7A, then the diaper body proceeds to a suction conveyor belt, whereupon it is conveyed in a transverse direction with respect to the conveying devices, thereby allowing diaper body 1 to be supplied between waistbands 2 and 3.

Diaper body 1 is then conveyed to adhesion means 8 and adhered to waistbands 2a, 3a by a suitable adhesion means such as an adhesive or heat seal.

It is then conveyed to folding means 9, and folded double by said folding means 9 to superimpose front waistband 2a and back waistband 3a.

The sides of the superimposed waistbands 2a and 2b are adhered and cut to the required shape by adhering-cutting means 10, to yield brief-type disposable diaper A.

#### Advantages of the invention

The present invention yields a brief-type disposable diaper by adhering and integrating a pair of waistbands and a

- 8 -

diaper body and cutting to the required dimensions and so conventional diaper production lines can be used for the diaper body, the waist parts are supplied as bands and automated mass production is possible due to a belt conveying device, so the brief-type disposable diapers can be effectively produced at extremely low cost.

#### 4. Brief description of the drawings

Figure 1 is an explanatory diagram for the brief-type disposable diaper production method of the present invention: Figure (a) shows the diaper body production process, and Figure (b) shows the waistband-integrating process.

Figure 2 is a diagram of the diaper body, and Figure 3 shows the front waist part and back waist part.

Figure 4 shows an oblique view of a brief-type disposable diaper produced according to the present invention, Figure 5 is plane view and Figure 6 is a cross-sectional view of the diaper body.

- 1        Diaper body
- 2        Back waist part
- 3        Front waist part
- 7        Diaper body supply means
- 8        Adhesion means
- 9        Folding means
- 10      Cutting means

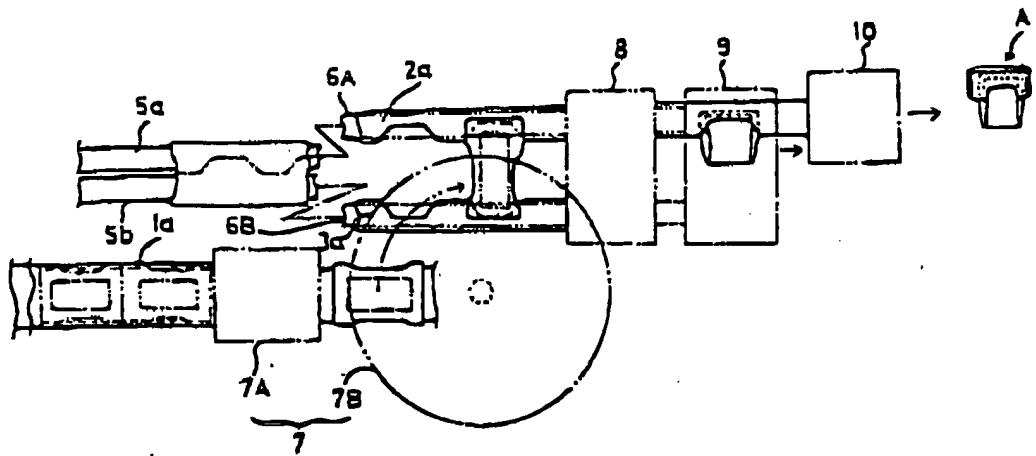
Applicant K.K. Zuiko

Patent attorney

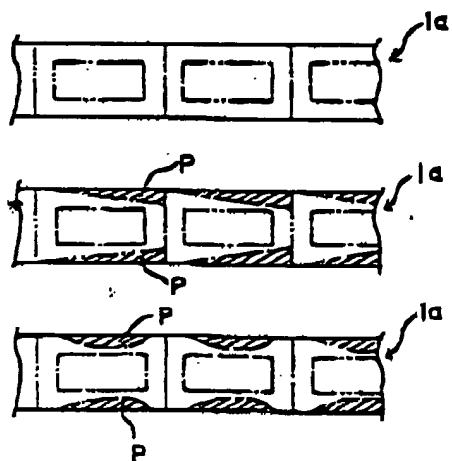
S. Okumura

特開平3-176053(5)

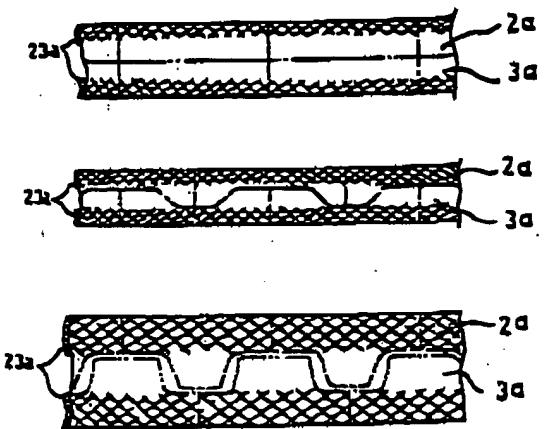
第1図 (C)



第2図

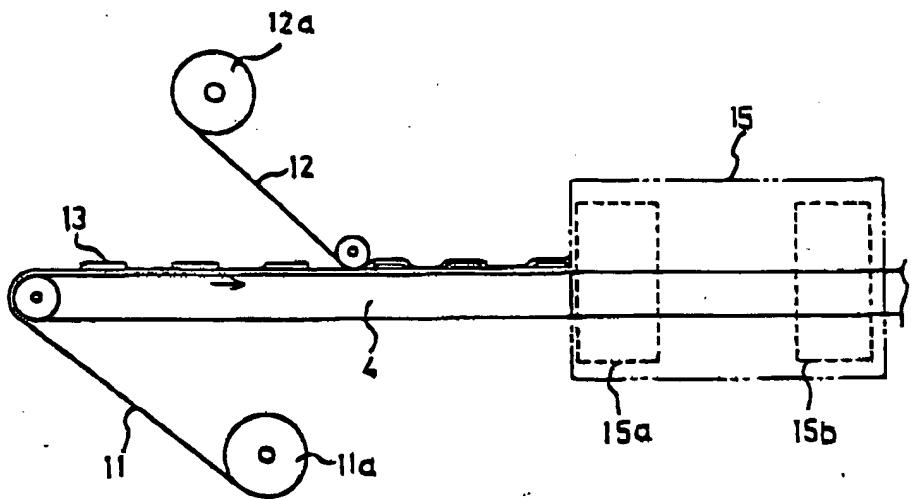


第3図

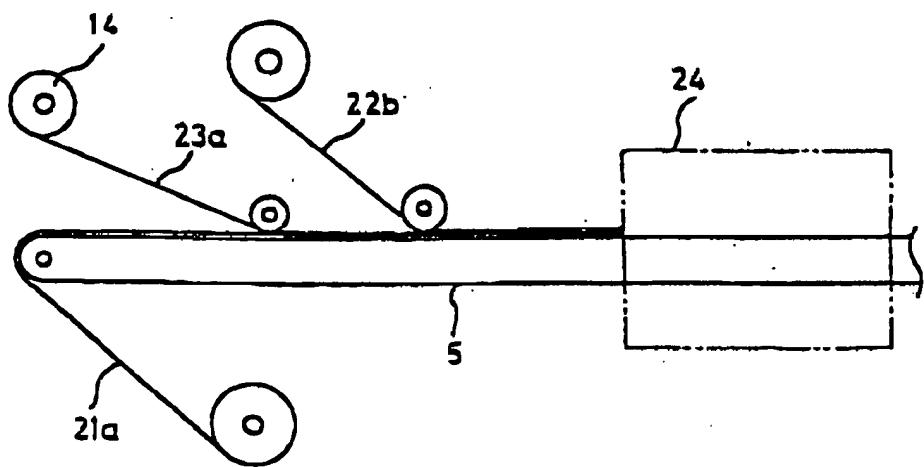


特開平3-176053(4)

第1図 (a)



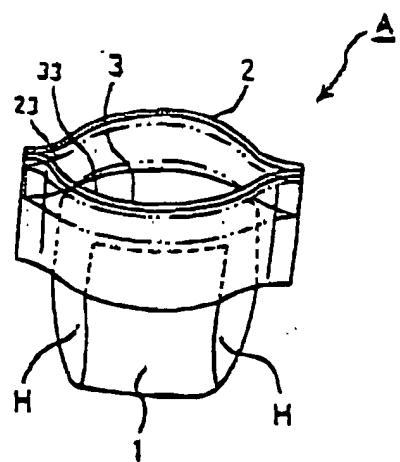
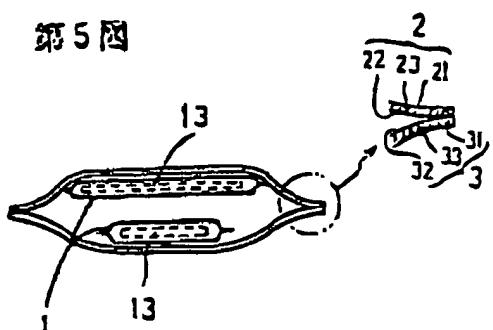
第1図 (b)



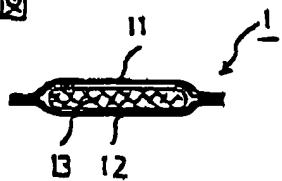
特開平3-176053(6)

第4図

第5図



第6図





进网证3-176053(2)

加速度にてヨリツを実行し、反対性の上記同様  
現を開始するものである。

口宣傳

以上は前回に承り吉丸氏にもうついて、本見回を  
説明する。

第4回から第6回は本巣町により作成されたアーリーフ形使い捨て羽日の一枚を示し、1は羽日  
ツス紙で、外観シート（糊入紙、瓦屋根シート  
であるP. B. シート）11と内観シート12  
(糊入紙、漆本院シートである不織布)とで、糊  
紙は13を用ひ込んで組成されている。

2は片側開き紙、3は両面開き紙であり、  
両面開き紙を3は、なぜか左側1とは対照して  
後述の実験を実施できるが、両側開ではなぜか左  
側1と両面の実験を左側1、右側をP、E、レー  
ト21・31、内側を右側22・32とする二  
重構造とし、その一端に両面紙シート（両面は  
ポリウレタンシート）23・33を日本語、ラ  
テン語とも上向きにおいては両側面の紙を用意とし  
た。また、両面紙シートの表面用紙とし全面的

電シート13との間に組み込んだは、両者の位置を13に内ケタ第1回路を改4により移設し、両者の接続位置13により接続部を構成し、また回路構成部で構成して用意部に接続する。また、本実の各2つの電路工作と組合せあり、回路の組合せて各2つの電路ラインを適用することができる。

今後、機首切削部を150を、第1ユニット150と第2ユニット150との2段構成とし、第1ユニット150では機首とともに切削部をPの切削のみを行なって、直角性に影響を及ぼさない形にして、第2ユニットを機首部150を工刃に取り込み直角切り削部を3-3との直角交角の選用において、第2ユニット150により機首方面に用意する直角部を切削してもよい。

また、自己の本位の構成を両方の位とする場合は、可燃性をアシストしないので、先にユニット1とユニット2では両者のみをアシストし、ユニット1とユニット2で同時にすることにより両者を構成することができる。

また、明治維新後の明治は、西洋の影響を強く受けた。

また、第1回カラオケコンテストを実施して、本発明によるアリーフ利用の上でさりげなく知識方法を説明する。

上側は、おむつ本ほしの背面工作を示し、内側シートロール11はおむつ紙被されると内側シート（バックシート）11と上に、吸収体12を配置し、その上に、内側シートロール12aより組成される内側シート（トップシート）12を重ねて、アンダーライタ紙に吸収体12を内側シート11と内

2・3の結果より得たる結果の結果に  
より見てのものが最も大きいのである。

第1回の中では、脚録り部曲成体2・3の宣  
傳ラインを示し、脚録りシートホール14より  
提出された脚録りシート23を脚録り部曲24  
により市や支那の宣傳3枚を宣傳して一  
枚の宣傳紙を形成し、一方を脚録り部曲25  
とし他方を脚録り部曲26とする。

なお、第3種に付することなく、外観シート（P. E.シート）と内観透明シート、内観シート（不透明）と内観透明シート、または外観シートと内観透明シート内観シートとの多用構造とする場合には、内観透明シートにコムを同一中の位置に接着とし、シート310-322の一部にのみ接着すると、内観透明シートを適度的に内観透明性を生じることなく）使用ができる（且つ両面より露出する部分を適度に保護し、両面のリバウンド性を形成することができる外観面である。

前回のと同様、本回のおひつは本と、おひつ用の空箱(2個・3個)と、一緒に出して

津局平3-170053(3)

アリーフがたいたてばさうとする工作を示し、  
「日本開拓の歴史は昭和24・30の第2回迄  
は・30を経過して昭和24年3月より開  
始する。

第1回 著者著者の紹介篇に、肯定するに際して  
された如の本体1を追述するための引用箇道著者  
2Aを起り、その18万の範囲を追記するに際して  
う本体1を引継ぎ、左側が追記箇道2Bで本体2  
は1を90度旋回させ両側に回り本体2A・3  
を向の肯定反面に改変を加えて本体2Bを構成  
して、本体2本体2Bを組合せた構成とする。

本日、電気特急開業第7日は電引搬送装置7Aの搬送面の上にせひつ本店1号室で取扱い、電引しつ1ノ1搬送として第3搬送装置6Aと第4搬送装置6Bとの間にせひつ本店1号室の搬送面をて搬送するものであるが、電引搬送装置7Aに連結して電引搬送ドラムを設けてドラムの面に押してせひつ本店の電送面を搬送させて日々の搬送をせたのち電引搬送ベルトに引取る電引搬送ベルトで搬送面と搬送面に押送しても、それはせひつ

体で見にされることで、ベルトは自己実現による大  
きな自我實現方法とすることができます。そのための開  
クストアブリーフが長い間で日々を充実できる  
自我實現ができます。

#### 4. 亂世の開拓者たち

第1回は本発明によるアリーフル用いはじておむつの製造方法を示す発明で、4回はおむつおむつの製造工程、5回は製造工程との一体化工程をそれぞれ示すものである。

第2圖はおむつ不適の立場圖、第3圖は耳管圖  
通り耳より前頭骨側の立場圖である。

第4回は本腰巻により包囲されたアーヴィング  
の妻で2人目の日高姫。第5回は平野姫。第6回  
は2人目の日高姫である。

1 — さかつ本舗

2-1-1 背景與圖 7

卷之二

第一回 金玉良缘

◎ 亂世指叢書

卷之三

1を周囲取り巻くには2・3倍に費用で2,4,6,8  
であり、ひとつ不完全な多段式は通常の階層平均  
により目的を達成することができる。

本に用意せねばへ事違したれ、ヒートシール、  
用意済みの道具の用意せねばにより、本は本につき  
を本どう四ヶ用具本は200・300と用意して一房  
化する。

そのうち、研究会は段々とへ進出し、豆田透み半  
月会により二月会に興味がて会場問題の問題に  
なると研究会は段々とへ進出し、豆田透み半

それからまた西側園内馬場は東24・25の馬場を、馬場切開平洋10により馬場とすることに、馬場切開は切開して、ブリーフが度い見てお23Aを馬場とし。

081234

本発明は、一月の開拓り部等はと、おなつま  
部とそ、頂部一様化し、開拓寸法に切替すること  
により、アリーフが使い口でおなつを見度すも  
のであるから、おなつま部は底座のおなつ部をラ  
インを用意することができる、また開拓り部は底座

10—切削干燥

田園人 横式会社 通 一  
化民人 会社士 通行 文